



*Date of Application, 4th Sept, 1900—Accepted, 13th July, 1901*

# COMPLETE SPECIFICATION.

## “Improvements in Collapsible Stretchers.”

I, KASPAR FREULER, of 120, Birmensdorferstrasse, Zürich, Switzerland, Physician, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to an improvement on an invention for which Letters Patent No 10572, dated May, 19th. 1899 were granted to me.

In practice I have found that the weight of the stretcher described in the Specification belonging to the said Letters Patent has been too great for certain purposes and that the same could not be reduced without also reducing the bearing power of the stretcher.

10 The object of my invention is to so form and position the links of the lazy-tongs of which the stretcher described in the said Letters Patent is chiefly composed and so stiffen and stay the sides thereof that the said links can be made comparatively less in size and still retain sufficient bearing power and the weight of the stretcher will thus be considerably reduced.

15 And in order that my invention may be more fully understood I have caused to be appended hereunto one sheet of drawings marked with letters of reference indicating like parts in the various figures.

Fig. 1 is a side view partly in section and Fig. 2 a plan of the stretcher when 20 extended, and Fig. 3 a side view when collapsed. Figs. 4, 5, 6 & 7 are details at an enlarged scale, Figs. 5, 6 & 7 showing the same respectively in two different positions.

$a^1$ ,  $a^2$  are the stretcher sides,  $b$  &  $b^1$  the ends or front and head thereof respectively.

25 In the present invention the lazy-tongs links  $c$  are not hinged together with their flat sides at a right angle to the hinge, as shown in the specification hereinbefore referred to, but hinged together so that the flat sides of the links are parallel with their hinge.

The stretcher sides  $a^1$ ,  $a^2$ , front  $b$  and head  $b^1$  are secured to the posts  $d^1$ ,  $d^2$ , 30  $d^3$ ,  $d^4$  by hinging their end links to collars carried by the said posts.

The lower ends of the side lazy-tongs links  $a^1$ ,  $a^2$  are furnished with eyes  $m$ , for the reception of a rope (wire rope)  $n$  at each side, the ends of which are passed through the posts  $d^1$ ,  $d^2$ ,  $d^3$ ,  $d^4$  and are prevented from leaving the posts  $d^1$ ,  $d^4$  through knots  $n^1$  or the like formed thereon, whilst on the pillars  $d^1$ ,  $d^4$  eccentric 35 levers  $n^2$  ( $n^3$ ) are employed by means of which the ropes  $n$  can be tightened and which can be locked in position by the pins  $n^4$ , see Figs. 6 & 7.

The rope branches  $n^5$  which pass through the posts and like the rope ends are prevented from leaving the posts  $d^2$ ,  $d^3$ , serve to stiffen the lower ends of the posts in such a manner that when raising the load the lazy-tongs links connected to 40 the posts will not have to stand the whole strain.

In order to further protect the stretcher sides against pull and pressure from the outside and inside a stiffening device  $o$  is employed having a cross head  $p$  from which extend the cross and diagonal rods  $p^1$  &  $p^2$  which are connected to the lazy-tongs links of the stretcher sides.

45 The ends of the rods  $p^2$  are partly connected with the lazy-tongs links by passing through their fulcrums and being secured thereto by nuts and partly



*Freuler's Improvements in Collapsible Stretchers.*

by the jointed rods  $p^3$  having studs  $p^4$  engaging each in the fulcrum of two links, whilst the rods  $p^1$  are secured to the jointed rods  $p^5$  which like the rods  $p^3$  are connected with the lazy-tongs links.

These rods are partly jointed by hinges and partly by ball joints so that when collapsing the stretcher, the stiffening device will also fold up. The hinges  $p^6$  5 are formed to abut against each other when open and thus become rigid, Fig. 7, whilst the ball joints are rendered rigid by means of a short tube  $p^8$  carried at one end by one rod section and furnished at the other internally with a screw thread adapted to engage a screw thread formed on the other rod section, Fig. 5.

The described stretcher is extended and collapsed in a similar manner as that 10 described in the specification hereinbefore referred to, however in order to be able to fold the said stiffening device, the said eccentric levers, hinges and tubular connections require previously releasing.

The altered position of the lazy-tongs links prevents also their upper ends being drawn together by the canvas attached thereto when under weight and will more 15 effectually resist side pressure or pull than heretofore has been the case.

This improved construction of lazy-tongs permits the links thereof being made much lighter, so that the whole weight of the stretcher will not exceed 7 kilo, —top pressure being borne by the said ropes and side pressure by the said stiffening device. 20

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

In a collapsible stretcher having sides and ends formed of lazy-tongs, ropes, extending along the lower ends of the lazy-tongs links and cross and diagonal 25 rods furnished with hinges and ball joints and connected with the said stretcher sides, the said ropes being adapted to be tightened when the stretcher is extended and the said hinges and ball joints rendered rigid when the stretcher is extended, all substantially as and for the purpose set forth.

Dated this 3rd. day of September, 1900. 30

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